

informalities as set forth in paragraph 1 of the Office Action. The Examiner's objections have been noted and the specification has been modified appropriately. In view of these amendments, Applicant respectfully requests withdrawal of these objections.

In addition, the Examiner has objected to the specification under 35 U.S.C. § 112, first paragraph, as not being clear, concise and exact. Specifically, the Examiner believes that the phrases and terms: "material having known strength characteristics"; "impervious paper"; and "pure polyurethane" are vague. As discussed above in connection with the Examiner's objections, the specification has been appropriately modified, either changing or removing the allegedly unclear terms and phrases. Applicant respectfully requests withdrawal of the 35 U.S.C. § 112, first paragraph, objections.

Claims 1, 2 and 4 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Specifically, the Examiner believes that the phrases and terms: "such as"; "a carbon steel typically used in the industry"; "material having known strength characteristics"; "impervious paper"; and "having a suitable strength" are vague and indefinite. Again, in view of the Examiner's remarks, Applicant has modified the claims, either changing or removing the allegedly vague and indefinite terms and phrases. In view of the foregoing amendments, Applicant respectfully requests withdrawal of the 35 U.S.C. § 112, second paragraph, indefiniteness rejections.

Further, also in accordance with the Examiner's indefiniteness rejection of the phrase "such as," Applicant has added new claims 9 and 10. Specifically, the limitations following the "such as" phrase, relating to carbon steel, have been moved to appropriate dependent claims. New dependent claim 9 depends from independent claim 1, and new dependent claim 10 depends from independent claim 4. Further, the desired minimum thickness of the polyurethane-based coating layer set forth in dependent claim 8 has been quantitatively

denoted. No new matter has been added.

Claims 1, 3, 4, 7 and 8 stand rejected under 35 U.S.C. § 103(a) for alleged obviousness over U.S. Patent No. 5,553,734 to Sharp in view of U.S. Patent No. 5,328,733 to Oxley. Further, the Examiner has rejected claims 2 and 6 under 35 U.S.C. § 103(a) for alleged obviousness over the Sharp patent in view of the Oxley patent, and in further view of U.S. Patent No. 3,616,178 to Gurin et al. (hereinafter “the Gurin patent”). Finally, claim 5 stands rejected under 35 U.S.C. § 103(a) for alleged obviousness over the Sharp patent in view of the Oxley patent, and in further view of U.S. Patent No. 5,090,586 to Mitchell.

Independent claim 1 of the present application, as amended, is directed to an underground reservoir for storing liquid products. This reservoir includes an inner, main reservoir and an outer, secondary reservoir. The outer secondary reservoir includes a coating layer, and the coating layer is formed by an inner layer made from a paper material and an outer layer made from polyurethane.

Independent claim 4 of the present application, as amended, is directed to a process for manufacturing an underground reservoir. This manufacturing process includes the steps of: providing an inner, main reservoir; covering an outer surface of the main reservoir with a first coating layer made from a paper material; and applying a second polyurethane-based coating layer over the first coating layer.

The Sharp patent is directed to a double-walled storage tank system having an enhanced wall integrity. The tank in the Sharp patent has an inner wall of steel and an outer wall of a fibrous reinforced resinous coating layer. The coating layer has an inner layer of fibrous reinforced material and an outer layer of polyurethane.

The Oxley patent is directed to a shirred fibrous casing article and method. It appears that the Examiner is using the Oxley patent for its teaching of the use of paper as a fibrous reinforcing material.

The Gurin patent is directed to an anchor-coated biaxially stress-oriented plastic sheet. The sheet is laminated to a rubber-coated paper for use as a letterpress or an offset-printing blanket. It appears that the Examiner uses the Gurin patent for its teaching of a latex-impregnated paper having a high tensile strength and tear-resistant properties.

The Mitchell patent is directed to a dual wall tank. It appears that the Examiner is using the Mitchell patent for its teaching of the common surface preparation technique of abrasive blasting of the steel. The Examiner further contends that this is a well-known technique in the art.

The Sharp patent discloses an underground reservoir that is completely different from the reservoir according to the present invention. The Sharp patent suggests the use of a coating layer, which includes an inner layer made of a fibrous reinforcing material and an outer layer made of polyurethane. However, the present invention is directed to an underground tank having an inner tank preferably made of steel, and an outer tank, or layer forming a tank, made of polyurethane, and does not include any fibrous reinforcing material. More specifically, contrary to the Examiner's remarks, the present invention does not require the use of support ribs as described in the Sharp patent. See column 6, lines 3-8. Additionally, in the present invention, the polyurethane itself is the reinforcing material and does not require any viscosity adjustment to receive any reinforcing fibrous material.

It is this substantial difference in the manufacturing method that allows the total thickness of the outer layer of the present invention to be made of polyurethane in the range of 2.5 to 3.5 mm. However, the Sharp patent discusses a total thickness of roughly 4 cm. See column 5, lines 18-19.

Still further, the Sharp patent discloses that the outer layer made of polyurethane is only used to protect the inner layer made of a fibrous reinforcing material, which can assume different shapes, such as nets, screens, meshes, etc. This material provides structural resistance

to the coating layer while in the present invention, the polyurethane layer is itself part of the structure.

The use of any resin reinforced with fiber (as in the Sharp patent) involves serious environmental problems relating to toxicity. Also, the final layer is still brittle and is easily broken. Alternatively, the polyurethane layer according to the present invention solves these environmental problems, while providing a final layer which is much better in resisting impacts than a layer made of fibrous reinforcing material.

Again, the Sharp patent discloses covering the inner steel tank with a first coating layer made from a fibrous reinforcing material, and the Examiner appears to assume that it would be obvious for a skilled person to use paper as the fibrous reinforcing material. Applicant respectfully disagrees. In the present invention, the paper layer is only used to prevent the polyurethane from adhering to the inner reservoir and does not have any reinforcement function. Therefore, this paper material is used to act as a spacer between the inner reservoir and the polyurethane outer layer. There is no need to enhance the textile strength and tear resistance of the paper layer, as this is only a separating layer that ensures the creation of a gap between the inner and outer tank.

Overall, the Sharp patent discloses an underground tank, wherein one of the resins used to manufacture the outer coating must receive a reinforcing fiber to provide a structural layer. In the present invention, the polyurethane layer is a structural layer and does not need any reinforcement. Therefore, the Sharp patent does not disclose an underground reservoir including an inner, main reservoir and including a coating layer, where the coating layer is formed by an inner layer made from a paper material and an outer layer made from polyurethane, as specifically disclosed in independent claims 1 and 4 of the present invention.

For the foregoing reasons, independent claims 1 and 4, as amended, are not anticipated by or rendered obvious over the Sharp patent. There is no hint or suggestion in any

of the references cited by the Examiner to combine these references in a manner which would render the invention as claimed obvious. Reconsideration of the rejections of independent claims 1 and 4 is respectfully requested.

None of the Oxley patent, the Gurin patent nor the Mitchell patent overcome the deficiencies of the Sharp patent. Whether used alone or in combination, none of the Oxley patent, the Gurin patent nor the Mitchell patent disclose an underground reservoir including an inner main reservoir and including a coating layer and the coating layer is formed by an inner layer made from a paper material and an outer layer made from polyurethane, as disclosed in independent claims 1 and 4, as amended, of the present application. Therefore, independent claims 1 and 4, as amended, are not anticipated by or rendered obvious over the Oxley patent, the Gurin patent nor the Mitchell patent. Reconsideration of the rejections of independent claims 1 and 4 is respectfully requested.

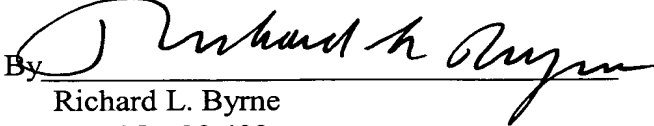
Claims 2, 3 and 9 depend directly from and add further limitations to independent claim 1 and are believed to be allowable for the reasons discussed hereinabove in connection with independent claim 1. Dependent claims 5-8 and 10 depend either directly or indirectly from and add further limitations to independent claim 4 and are believed to be allowable for the reasons discussed hereinabove in connection with independent claim 4. In addition, the Gurin patent is directed to a slippage-resistant, flexible packing blanket for a letterpress or a printing blanket. This is clearly a separate field than tank manufacturing and construction. Therefore, Applicant respectfully submits that the Gurin patent represents non-analogous art and has been improperly combined with the Sharp patent and the Oxley patent in forming a rejection of claims 2 and 6. Therefore, for all the above reasons, reconsideration of the rejections of claims 2, 3 and 5-8 and allowance of claims 2, 3 and 5-10 are respectfully requested.

For all the foregoing reasons, Applicant believes that claims 1-10, as amended, are patentable over the cited prior art and are in condition for allowance. Reconsideration of the

rejections and allowance of all pending claims 1-10 are respectfully requested.

Respectfully submitted,

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MARKED-UP SPECIFICATION

Page 2, third full paragraph:

This solution, however, is too [much] expensive and does not fully eliminate the problem of corrosion caused by chemicals on the outer metallic surface of the underground reservoir being used as a supplementary protection means against corrosion in grounds having a high potential.

Page 4, first full paragraph after the heading SUMMARY OF THE INVENTION:

In accordance with the present invention, such objects are accomplished through the provision of an underground reservoir for storing liquid products comprising an inner or main reservoir made from a material [having known strength characteristics], such as a carbon steel [typically used in the industry], and an outer or secondary reservoir comprising a coating layer, said coating layer being formed by an inner layer made from [an impervious] a paper material and an outer layer made of polyurethane.

Bridging pages 4 and 5, second full paragraph after the heading SUMMARY OF THE INVENTION:

In accordance with an aspect, the present invention is directed to a process for manufacturing an underground reservoir comprised of the steps of providing an inner or main reservoir made from a material [having known strength characteristics], such as carbon steel [typically used in the industry], blasting portions of the outer surface of said main reservoir to allow for the adherence of the outer coating, covering same with a first coating layer comprising [an impervious] a paper material, and applying an outer layer of [to the pure] polyurethane [base], without adding any solvent, having a minimum thickness desired.

Page 5, second full paragraph after the heading DETAILED DESCRIPTION OF THE  
PREFERRED EMBODIMENT:

With reference now more particularly to the accompanying Figures, in which the same numerals have been used to indicate the same elements in the different views and, with particular reference to Figure 1, the coated reservoir in accordance with the present invention is illustrated as comprising a primary or inner reservoir 1 made from a material [having a known strength characteristic], such as carbon steel [typically used in the industry].

Page 6, first full paragraph:

As can be better seen from Figure 2, the primary or inner reservoir 1 is coated with a two-compound material comprising an inner layer 6 made from [impervious] a paper material, preferably based on latex, and an outer layer 7 based on [pure] polyurethane, without the addition of any solvent, which it is applied and cured on the inner paper layer 6.



MARKED-UP CLAIMS

1. (Twice Amended) An underground reservoir for storing liquid products, comprising an inner, main reservoir [made from a material having well-known strength characteristics, such as a carbon steel typically used in the industry], and an outer, secondary reservoir comprising a coating layer, said coating layer being formed by an inner layer made from [an impervious] a paper material and an outer layer made of polyurethane.

2. (Twice Amended) The underground reservoir of claim 1, wherein said [impervious] paper material is a latex-based paper [having a suitable strength].

3. (Twice Amended) The underground reservoir of claim 1, wherein said outer layer made of polyurethane is made [of pure polyurethane,] without the addition of any solvents.

4. (Twice Amended) A process for manufacturing an underground reservoir comprising the steps of

providing an inner, main reservoir [made from a material having known strength characteristics, such as carbon steel typically used in the industry], and

covering an outer surface of said main reservoir with a first coating layer made from [an impervious] a paper material, and applying a second polyurethane-based coating layer over said first coating layer.

6. (Amended) The process according to claim 4, wherein said [impervious] paper material is a latex-based paper.

7. (Twice Amended) The process according to claim 4, wherein said second polyurethane-based coating layer is made of [pure] polyurethane, without the addition of any solvents.

8. (Twice Amended) The process according to claim 7, wherein said second polyurethane-based coating layer has a desired minimum thickness of at least 2.5 mm.